

**Remarks/Arguments:**

Claims 1-20 were rejected in the Office Action dated November 10, 2003 (hereinafter "Office Action"). Claims 1, 6 and 18 are amended herein. Support for the amendments to claim 1 can be found in claim 6, the specification generally, and specifically at page 4, lines 11-13 and page 5, lines 22-25. Claims 6 and 18 were amended to provide correct antecedent basis. Claims 1-20 remain pending.

**Rejections based upon 35 U.S.C. § 103**

The Office Action rejects claims 1-20 under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 3,247,248 issued to Sims et al. (hereinafter the " '248 patent") in view of U.S. Patent No. 3,933,888 issued to Schlaefer (hereinafter the " '888 patent"). Specifically, the Office Action states that the '248 patent teaches a silica containing catalyst formed by treating silica with a water solution of alkali. The Office Action relies on the '888 patent to provide a teaching of a pH range for treatment in the range as claimed. The applicant respectfully traverses this obviousness rejection and submits the following arguments in support of patentability.

Amended claim 1 recites "[a] method for making a catalyst comprising the steps of: forming a silica component, *the silica component being a silica hydrogel . . .*" Neither the '248 patent or the '888 patent disclose or teach a catalyst formed on a silica hydrogel. Both the cited references disclose catalysts formed by slurring the dry form of silica, i.e. silica xerogel or pyrogenic silica into an aqueous solution of a basic compound. In contrast, the present claims recite a method of slurring silica *hydrogel* into an aqueous solution of an alkali or alkaline earth metal.

The '888 patent specifically requires pyrogenic silica as the catalyst support. See abstract, col 2, lines 17-18. Furthermore, the '888 patent distinguishes the properties of pyrogenic silica from silica gels, and extols the benefits of pyrogenic silica over silica gels. Col.

1, lines 66-col. 2, lines 16. The '888 patent provides no disclosure or suggestion for using a silica hydrogel in forming a catalyst.

The '248 patent also fails to teach the use of hydrogel in forming a catalyst, as only the dry form of silica gel is disclosed. While the '248 patent does not specifically distinguish between the xerogel and hydrogel forms of silica gel, the disclosed process of preparing catalysts is clearly directed exclusively at xerogel applications. The "silica gel" disclosed in the '248 patent is a xerogel as revealed by the concentrations recited in the examples. As described in Example 2 of the '248 patent, 2.4 grams of an 87% KOH solution added to 200 grams of silica gel results in only 1% KOH by weight on the silica gel after drying. col. 3, line 74-col. 4, line 5. The resulting KOH concentration proves that the "silica gel" starting material is substantially free of water weight  $((0.87 \times 2.4 \text{ g KOH}) / (200 \text{ g silica gel} + 2.4 \text{ grams KOH solution}) = 0.010 = 1.0\% \text{ KOH})$ . If a hydrogel, which typically contains greater than 25% water, were used in the '248 patent examples, the resulting concentration of KOH would be much higher than 1% after drying of the gel, because the "200 g silica gel" term in the denominator would be reduced by, for example 50 g upon drying, if the starting silica gel contained 25% water.

Accordingly, neither of the applied references disclose or teach a hydrogel based catalyst, therefore the references fail to disclose, either alone or combined, the elements of amended claim 1. Claims 2-17 and 20 each depend, either directly or indirectly from claim 1, and are all allowable over the cited references. Claim 18, from which claim 19 depends, also recites a method for making a catalyst involving a hydrogel. Specifically reciting the steps of "combining an alkali metal silicate, a mineral acid, and a source of zirconium to form a hydrosol and allowing said hydrosol to set to form a co-gel." Accordingly, claims 18-19 are also allowable over the cited references for the reasons above.

Appn. No.: 09/964,177  
Amendment Dated, March 10, 2004  
Reply to Office Action of November 10, 2003

PQC-302US

The rejections under 35 U.S.C. § 103 should be withdrawn. Favorable action is earnestly solicited. The Examiner is invited to call applicant's undersigned representatives if any further action will expedite the prosecution of the application or if the Examiner has any suggestions or questions concerning the application or the present response.

Respectfully submitted,



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PDP/

Attachments: Transmittal  
Petition for Extension of Time

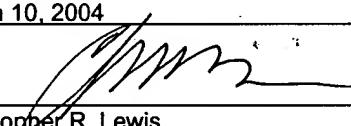
Dated: March 10, 2004

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Christopher R. Lewis